

CLAIMS

1. A method of depositing a liquid droplet, comprising:
 - providing a sample plate at a distance from a liquid droplet;
 - generating an electric field between the liquid droplet and the sample

5 plate to polarize the liquid droplet; and

pulling the liquid droplet portion to the sample plate along the electric field.
2. The method of claim 1, wherein providing a sample plate
10 further comprises moving the sample plate to a target position.
3. The method of claim 1, further including providing the pulled portion of the liquid droplet to a target location on the sample plate.
- 15 4. The method of claim 1, further comprising providing the liquid droplet at a tip of a capillary configured to hold a sample, and wherein generating an electric field includes applying a voltage to the liquid droplet.
5. The method of claim 1, wherein generating an electric field
20 includes applying a voltage to the sample plate.
6. The method of claim 1, wherein generating an electric field includes applying a voltage to more auxiliary electrodes.
- 25 7. The method of claim 1, wherein the distance between the liquid droplet and the sample plate is less than ten millimeters.
8. The method of claim 7, wherein the distance between the liquid droplet and the sample plate is approximately five millimeters.

9. The method of claim 1, wherein the electric field has a duration of 100-300 milliseconds.

10. The method of claim 9, wherein the electric field has a duration of approximately 200 milliseconds.

11. The method of claim 4, wherein the voltage has a range of 500-3000 volts.

10 12. The method of claim 11, wherein the voltage is approximately 1000 volts.

13. The method of claim 5, wherein applying a voltage further includes connecting the liquid droplet to ground.

15 14. The method of claim 4, wherein applying a voltage further includes connecting the sample plate to ground.

20 15. A liquid droplet deposition system, comprising:
a holding mechanism;
a plurality of capillaries, held by the holding mechanism, each capillary containing a portion of a liquid droplet;
a sample plate positionable with respect to the plurality of capillaries;
and
25 a power supply configured to generate an electric field between each capillary and the sample plate along which a droplet of the portion is pulled to the sample plate.

30 16. The system of claim 15, wherein each capillary further includes:
a holding column for containing the portion of the liquid droplet; and

a capillary tip, connected to the holding column at a first end, and including an open tip at a second end for providing one of the droplets.

17. The system of claim 15, wherein the sample plate is coupled to 5 a movable sample plate holder.

18. The system of claim 15, wherein the sample plate is positioned below the array of capillaries.

10 19. The system of claim 17, further comprising means for moving the sample plate to a target position.

15 20. The system of claim 15, wherein the power supply includes a voltage source for applying a voltage to the sample plate.

21. The system of claim 15, wherein the power supply permits the independent application of a voltage to each of a plurality of liquid droplets.

20 22. The system of claim 15, wherein the power supply permits the independent application of a voltage to different parts of the sample plate.

23. The system of claim 20, wherein the power supply further includes a ground connection for grounding the liquid droplet.

25 24. The system of claim 15, wherein the power supply includes a voltage source for applying a voltage to the liquid droplet.

26 25. The system of claim 24, wherein the power supply further includes a ground connection for grounding the sample plate.

26. A liquid droplet deposition method, comprising:
providing a plurality of liquid droplet droplets above a positionable
sample plate; and
attracting each droplet to a target location on the sample plate with an
electric field formed between the plurality of droplets and the sample plate.

27. The method of claim 26, wherein the plurality of liquid droplet
droplets includes eight or more droplets.

10 28. The method of claim 26, wherein attracting each droplet to a
target location is performed in a succession to a single target location.

Paul M
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